



## BHCTP Monthly Discharge Monitoring Report

901 S Division  
Pinehurst, ID 83850  
Office 208/682-9190  
Fax 208/682-2737  
[www.ferguson-contracting.com](http://www.ferguson-contracting.com)

Month: April-17  
Facility: Central Treatment Plant  
Location: Bunker Hill Superfund Site  
Contract Number: W912DW-13-C-0026-P00018

<u>Total Flow For The Month From 006 Outfall:</u>	61,468,700	gallons
Sludge pumping to CIA sludge pond:	2,442,000	gallons
<u>Total Flow From Kellogg Tunnel:</u>	61,947,620	gallons

Percent of Influent Successfully Treated: 100.0%

12 sample days \* 6 parameters (Pb, Cd, Zn, Mn, TSS & pH) = 72 potential exceedances  
**72 - 0 exceedances = 72      72/72 = 100%**

### Results of Sampling Efforts:

All sampling has been performed in accordance with specifications and the Sampling and Analysis Plan. QC and QA samples have been taken as required. All sample analysis results may be found within this DMR.

Performance Evaluation (PE) sampling for the CTP continued, with four PE samples delivered to SVL for this reporting period. The PE samples were identified as CTPXX (random CTP sites). These samples consisted of preserved 500-ml trace metal samples to be analyzed for Cd, Pb and Zn. The PE acceptable quantitation range is listed on the 'QC' page of this DMR.

Trip blank and rinsate samples were also taken, with the results being reported on the 'PTM-004,RB,TB' page of this DMR.

### Highlights of Plant Maintenance and/or Plant Optimization:

**04-01-17** Performed monthly fire extinguisher inspection. All CTP fire extinguishers are fully charged and in good working condition at this time.

**04-01-17** Performed monthly pump and motor inspection. All CTP pumps and motors are in good condition at this time with the exception of the Rapid Mix gear box. Gear box vibration is increasing.

**04-03-17** Performed quarterly pump and motor preventative maintenance inspection with Balancing Services. The inspection report was submitted to the COR along with the CTP daily quality control report on April 3rd.

**04-05-17 - 04-07-17** Amec Foster Wheeler team on-site to evaluate operator activities and perform design analysis. The CTP Lead Operator provided all requested information and site component identification.

**04-05-17** pH swings from 7.7 to 9.4 occurred throughout the night as the mine pool pump was removed from service during the evening of 04-04-17. It is not believed the pH swings will cause NPDS exceedances.

**04-06-17** Performed a Clarifier underflow pipeline backflush. During this KT low-flow period, the underflow pipes were backflushed using city supply water. All three pipelines were found to be clear of any blockage at this time.

**04-11-17** Operators performed the monthly no-load emergency generator run test. The emergency generator operated no CTP components during the 30-minute run test. A generator run test report was submitted to the COR.

**04-11-17** Health & Safety manager performed the quarterly site visit and document review. Safety meeting topics, lockout & tagout log and operator training were all reviewed. No lost-time injury nor accidents have occurred during this reporting period.

**04-12-17** Performed repairs on lime screen system B. Operators replaced the rubber lime slurry discharge boot. Operators performed the required lockout and tagout procedure prior to dismantling the lime grit separation

system. The lime grit screen unit was tested and placed back into service with a new rubber slurry boot installed. One rubber boot was removed from the inventory stock items.

**04-18-17** CTP Lead Operator, Process Engineer, COR and Amec team attended the monthly CTP process review meeting. Process pH of 8.6 was discussed. KT discharge pumping schedule was reviewed. Process quality, plant operations and operator work schedules were reviewed. OMER projects were reviewed. The performance evaluation sample results were reviewed by the Lead Operator and process engineer. FCI process engineer performed his final CTP process controls review. Lead Operator commended the process engineer for his 17 years of dedication to the BHCTP.

**04-19-17** 23:00 The CTP Lead Operator received notification from the water district that water pressure will decrease due to a main water line break. A plant inspection was performed to begin monitoring the city water supply pressure to prevent damage to the water-cooled pumps. The water pressure did not decrease below the pump pressure limits.

**04-20-17** 08:00 City supply water pressure decreased below 40 psi, requiring an unscheduled plant shutdown. The water district informed the CTP operators that the water pressure may be restored by midnight.

Operators developed a contingency plan to utilize process water for pump coolant, lime slaking and floc mixing water. The contingency plan was enacted to maintain a continuous treatment process and to prevent using the storage capacity of the Lined Pond.

11:00 The CTP was placed back into service utilizing the #2 Polishing Pond pump for pump coolant, lime makeup and flocculent mixing supply water. The lime and flocculent makeup procedure required two operators for pump flow control of the Polishing Pond supply water. An operator overtime schedule was developed to provide pump and process inspections throughout the off-shift hours.

15:00 The CTP began receiving mine pool pumped water from the Bunker Hill Mine. The CTP influent flow increased approximately 450 gpm after mine pool pump activation. CTP operator overtime was mandatory to perform lime feed adjustments for approximately two hours until the lime system and process pH stabilized.

18:00 A plant and process inspection was performed with no issues to report. The pumps and treatment process remain in a continuous state of operation with no upsets or issues.

22:00 A second plant inspection was performed with no issues to report. The pumps and treatment process remain in a continuous state of operation with no operator involvement required.

**04-21-17** 04:00 The CTP was placed back on city supply water, as the pressure was restored above alarm levels. The treatment process remains in continuous operation with no issues receiving approximately 1480 gpm of influent. The CTP influent consists of approximately 1030 gpm of gravity flow and 450 gpm of mine pool pump water. The SCADA system is experiencing no pH swings at this time. No additional operator involvement is needed. Lime usage will be calculated and submitted with the weekly data on Monday, April 24th.

**04-21-17** 16:00 The mine operator notified CTP operators that a second mine pool pump was activated. The KT discharge flow increased from 1480 gpm to approximately 1900 gpm. The process monitoring and lime system required operator manual adjustments to control the pH oscillations. Historical data was reviewed to support the decision to remain at a pH set point of 8.6 after the second mine pool pump was activated.

**04-25-17** Operators performed the monthly full load emergency generator run test. The emergency generator operated all CTP components for one hour as programmed with no issues or errors to report.

**04-28-17** Reduced the process pH set point from 8.6 to 8.5. Treated outfall and KT discharge sample results indicated a significant reduction in zinc. The treated outfall zinc level is now at 0.131 mg/L.

**04-30-17** Performed monthly flow meter resets and total flow documentation.

**During this reporting period:**

- The Kellogg Tunnel discharge flow decreased by 2% from April 2016, from 63.3 mg to 61.9 mg.
- The Kellogg Tunnel zinc concentration increased by 107% from April 2016, from an average of 115 mg/L to 238 mg/L.
- The CTP operating pH set point was reduced from 8.6 to 8.5.
- The flocculent dosage fluctuated between 5.0 and 2.0.
- The CTP sludge recycle rate remained at 400 gpm.
- CTP operators received two off-shift auto dialer call-out alarms caused by city water supply loss and mine pump activation.
- CTP operators performed five pumping events from the Lined Pond.
- CTP operators verified Aeration Basin pH probe and grab sample values twice per day.
- CTP operators remained in contact with the mine owner and mine manager during this runoff period.
- CTP operators performed daily inspections of the lime slurry holding tank, with no leaks or increased corrosion found this month.

Lessons Learned

Burgundy-colored KT discharge seems to create low-density (fluffy) sludge in the Clarifier.

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2017	4	1	2017	4	30

PARAMETER		Quantity or Loading			Quality or Concentration				FREQUENCY OF ANALYSIS	SAMPLE TYPE
		MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	MINIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS		
pH	Sample Measurement				6.43		7.06		Continuous	Meter
	Permit Required				6.0		10.0			
Flow Thru Treatment Plant	Sample Measurement	2.05	2.79	mgd						
	Permit Required		Daily							
Lead Total - Pb Effluent	Sample Measurement	0.06	0.08	lbs/day		0.004	0.004	mg/L	three samples/ week	Comp 24
	Permit Required	14.8	37.0			0.30	0.60	mg/L		
Zinc Total - Zn Effluent	Sample Measurement	5.91	10.56	lbs/day		0.37	0.57	mg/L	three samples/ week	Comp 24
	Permit Required	36.2	91.3			0.73	1.48	mg/L		
Cadmium - Cd Effluent	Sample Measurement	0.14	0.245	lbs/day		0.009	0.015	mg/L	three samples/ week	Comp 24
	Permit Required	2.40	6.10			0.050	0.100	mg/L		
Manganese - Mn Effluent	Sample Measurement	56	97	lbs/day		3.1	4.8	mg/L	three samples/ week	Comp 24
	No Permit Required					N/A	N/A	mg/L		
Total Suspended Solids - TSS	Sample Measurement	14.6	37	lbs/day		0.9	1.6	mg/L	three samples/ week	Comp 24
	Permit Required	985	1907			20	30	mg/L		

PREPARED BY: GARY FULTON

REVIEWED BY: Mark Reinsel, Ph.D., P.E.

**NPDES DISCHARGE POINT 006**  
**CENTRAL TREATMENT PLANT**  
**MONTH: Apr-17**

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	FLOW	TSS		LOADING
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day			mgd	mg/L	lbs/day
1		0.072		6.93		0.18		96		2.40		16.0	7.27
2		0.067		6.47		0.17		90		2.24		15.0	6.79
3	0.004	0.063	0.346	6.05	0.009	0.16	4.80	84	6.74	2.10	0.8	14.0	6.35
4		0.065		6.27		0.16		87		2.17		14.5	6.57
5	0.004	0.063	0.369	6.44	0.010	0.18	4.76	83	6.56	2.09	0.6	10.5	4.75
6		0.061		6.30		0.18		81		2.05		10.2	4.64
7	0.004	0.060	0.568	9.41	0.015	0.25	4.41	73	6.67	1.99	0.8	13.3	6.01
8		0.055		8.75		0.23		68		1.85		12.3	5.59
9		0.047		7.37		0.19		57		1.55		10.4	4.71
10	0.004	0.043	0.491	5.84	0.011	0.13	2.53	30	6.43	1.43	1.0	11.9	5.40
11		0.048		6.60		0.15		34		1.61		13.4	6.09
12	0.004	0.045	0.444	5.53	0.009	0.12	1.96	24	6.52	1.49	1.2	14.9	6.78
13		0.047		5.82		0.12		26		1.57		15.7	7.13
14	0.004	0.049	0.449	5.85	0.009	0.12	1.78	23	6.48	1.56	0.8	10.4	4.72
15		0.049		5.73		0.12		23		1.53		10.2	4.63
16		0.049		5.82		0.12		23		1.55		10.4	4.70
17	0.004	0.046	0.461	5.87	0.009	0.11	1.57	20	6.44	1.53	0.6	7.65	3.47
18		0.047		5.96		0.11		20		1.55		7.76	3.52
19	0.004	0.056	0.458	7.07	0.010	0.15	1.63	25	6.48	1.85	0.6	9.27	4.20
20		0.044		5.62		0.12		20		1.47		7.36	3.34
21	0.004	0.048	0.454	6.10	0.010	0.13	1.63	22	6.47	1.61	0.6	8.1	3.66
22		0.073		9.17		0.20		33		2.42		12.1	5.50
23		0.084		10.56		0.23		38		2.79		14.0	6.33
24	0.004	0.078	0.164	3.54	0.005	0.11	4.18	90	7.06	2.59	0.6	12.95	5.87
25		0.084		3.82		0.12		97		2.79		13.97	6.34
26	0.004	0.082	0.131	2.98	0.004	0.08	3.89	88	7.04	2.72	1.6	36.36	16.49
27		0.083		3.03		0.08		90		2.77		36.99	16.77
28	0.004	0.083	0.122	2.81	0.003	0.08	3.50	81	7.04	2.76	1.0	23.03	10.45
29		0.081		2.76		0.08		79		2.71		22.61	10.26
30		0.082		2.79		0.08		80		2.74		22.91	10.39
Total	0.043	1.854	4.457	177.2	0.104	4.247	36.64	1686	79.93	61.47	10.20	438.1	198.7
Sample Events	12	30	12	30	12	30	12	30	12	30	12	30	30
Daily Average	0.004	0.062	0.371	5.91	0.009	0.142	3.1	56	6.66	2.05	0.85	14.6	6.62
Lab Detection Limit	<b>0.003</b>	<b>0.004</b>		<b>0.001</b>		<b>0.004</b>			<b>0.01</b>		<b>0.800</b>		

MIN                    0.004    0.043    0.122    2.759    0.003    0.077    1.570    19.995    6.430    1.426    0.600    7.360    3.338  
MAX                    0.004    0.084    0.568    10.558    0.015    0.245    4.800    97.321    7.060    2.790    1.600    36.985    16.773

Notes:

(X mg/L) \* (1 kg/10^6 mg) \* (2.205 lbs/kg) \* (3.785 L/gal) \* (10^6 gal/Mgal) \* (Y Mgal/day) = (X) \* (Y) \* (8.345) in lbs/day

(X lbs/day) \* (1 kg/2.205 lbs) = (X) / (2.205) in kg/day

## KELLOGG TUNNEL DISCHARGE

## CENTRAL TREATMENT PLANT

MONTH: Apr-17

Data from SVL

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	006 FLOW		TSS	
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1		14.56		4,446		12.14		1,510		2.40		280	127
2		13.60		4,153		11.34		1,410		2.24		262	119
3	0.727	12.72	222	3,884	0.606	10.60	75	1,319	2.83	2.10	14	245	111
4		13.16		4,020		10.97		1,365		2.17		254	115
5		12.68		3,872		10.57		1,315		2.09		244	111
6	0.791	13.50	296	5,051	0.852	14.54	64	1,092	2.75	2.05	6	102	46
7		13.11		4,905		14.12		1,060		1.99		99	45
8		12.19		4,562		13.13		986		1.85		92	42
9		10.26		3,840		11.05		830		1.55		78	35
10	0.750	8.92	285	3,391	0.759	9.03	60	714	2.77	1.43	6	71	32
11		10.08		3,829		10.20		806		1.61		81	37
12		9.34		3,548		9.45		747		1.49		75	34
13	0.728	9.54	294	3,852	0.779	10.21	61	795	2.80	1.57	7	92	42
14		9.48		3,827		10.14		790		1.56		91	41
15		9.29		3,754		9.95		775		1.53		89	41
16		9.43		3,808		10.09		786		1.55		91	41
17	0.671	8.55	253	3,224	0.686	8.74	53	677	2.75	1.53	8	102	46
18		8.68		3,272		8.87		687		1.55		103	47
19		10.36		3,908		10.60		820		1.85		124	56
20	0.694	8.51	248	3,042	0.652	8.00	55	671	2.79	1.47	8	98	45
21		9.32		3,332		8.76		735		1.61		107	49
22		14.02		5,008		13.17		1,105		2.42		162	73
23		16.14		5,767		15.16		1,272		2.79		186	84
24	0.908	19.59	158	3,409	0.372	8.03	101	2,179	2.86	2.59	176	3798	1722
25		21.14		3,679		8.66		2,352		2.79		4098	1858
26		20.64		3,591		8.45		2,295		2.72		4000	1814
27	0.806	18.63	150	3,467	0.353	8.16	92	2,136	2.90	2.77	121	2797	1268
28		18.56		3,455		8.13		2,128		2.76		2787	1264
29		18.23		3,392		7.98		2,090		2.71		2736	1241
30		18.46		3,436		8.09		2,116		2.74		2772	1257
Total	6.08	392.70	1906.00	116726	5.06	308.32	561.30	37565.99	22.45	61.47	346.00	26115.98	11843.98
Sample Events		8	30	8	30	8	30	8	30	8	30	8	30
Daily Average	0.759	13.1	238	3,891	0.632	10.28	70.2	1,252	2.81	2.05	43	871	395

Notes:

 $(X \text{ mg/L}) * (1 \text{ kg}/10^6 \text{ mg}) * (2.205 \text{ lbs/kg}) * (3.785 \text{ L/gal}) * (10^6 \text{ gal/Mgal}) * (Y \text{ Mgal/day}) = (X) * (Y) * (8.345) \text{ lbs/day}$  $(X \text{ lbs/day}) * (1 \text{ kg}/2.205 \text{ lbs}) = (X) / (2.205) \text{ kg/day}$

**PTM Effluent at Lined Storage Pond  
CENTRAL TREATMENT PLANT**

**Month: Apr-17**

DATE	LEAD mg/L	ZINC mg/L	CADMUM mg/L	pH s.u.	TSS mg/L
04/06/17	0.009	12.1	1.26	7.04	0.0
04/20/17	0.006	12.1	1.32	6.86	0.0

**RINSATE AND TRIP BLANKS  
CENTRAL TREATMENT PLANT**

**Month: Apr-17**

**Rinsate and Trip Blank samples will be taken approximately every 20 QC events, or one each per month.**

LOCATION <b>Rinsate &amp; Trip Blank</b>	DATE	SAMPLE	LEAD mg/L	ZINC mg/L	CADMUM mg/L
PTM Discharge		RB-04-06-17	<0.01	<0.004	<0.002
Trip Blank (D.I.water)		TB-04-06-17	<0.01	<0.004	<0.002

Bunker Hill Central Treatment Plant																																	
Daily log April 2017																																	
DATE	Operators	INFLUENT KT			AERATION BASIN				CLARIFIER				DISCHARGE 006				RECYCLE SG			LIME SLURRY			SLUDGE PUMP		POND PUMP		SLUDGE GUN TEST	LINED POND	ESTIMATED				
		GPM	pH	SET	pH1	grab	pH1	grab	pH2	grab	pH2	grab	TURB	TEMP	pH3	grab	pH3	grab	TURB	FLOW	SG	GPM	SG	%solid	Closed/Open	pump #	min	ON	OFF	10' Out	20' Out	Elevation (mg)	
4/1	GC				8.5	8.6	8.6	8.5	8.5	7.7	8.1	7.7	8.0	0.67	45	7.3	7.4	7.4	7.4	0.59	2.40	1.028	400	1.082	12.6	140/33	3	210			55"	34"	2270.5 (1.87mg)
4/2	SB				8.5	8.5	8.5	8.5	8.5	7.6	8.1	7.8	8.1	0.78	48	7.3	7.2	7.4	7.3	0.69	2.24	1.028	400	1.078	12.0	132/33	3	210			57"	46"	2270.5
4/3	GF,SB	1611	2.75	8.5	8.6	8.5	8.5	8.5	7.7	7.9	7.7	8.1	0.80	50	7.3	7.2	7.4	7.3	0.70	2.10	1.030	400	1.076	11.7	130/33	3	210			50"	28"	2271.0 (2.25mg)	
4/4	GF,SB,GC				8.5	8.6	8.6	8.6	8.7	7.7	8.0	7.9	8.1	0.88	44	7.3	7.2	7.3	7.1	0.74	2.17	1.030	400	1.074	11.4	126/33	3	180	#3 05:45	13:30	49"	34"	2271.0
4/5	GF,SB,GC				8.5	8.6	8.7	8.6	8.6	7.7	8.1	7.8	8.0	0.78	47	7.3	7.2	7.3	7.2	0.70	2.09	1.029	400	1.074	11.4	60/33	3	130	#3 05:30	13:00	46"	35"	2270.5 (1.87mg)
4/6	GF,SB,GC	1160	2.69	8.5	8.5	8.4	8.4	8.4	7.6	7.7	7.5	8.0	0.90	46	7.3	7.3	7.3	7.3	0.78	2.05	1.029	400	1.078	12.0	155/33	3	180	#3 06:20	13:35	48"	30"	2270.0 (1.5 mg)	
4/7	GF,GC				8.6	8.6	8.5	8.6	8.6	7.9	7.9	7.8	7.9	0.90	46	7.3	7.3	7.3	7.3	0.60	1.99	1.029	400	1.079	12.2	156/33	3	120	#3 06:55	9:30	39"	20"	2269.0 (1.0 mg)
4/8	GF				8.6	8.6	8.5	8.7	8.6	7.7	7.5	7.9	7.9	0.95	44	7.3	7.0	7.3	7.4	0.49	1.85	1.032	400	1.075	11.6	154/33	3	180			48"	24"	2268.5 (0.75mg)
4/9	SB				8.6	8.6	8.6	8.7	8.6	7.6	7.9	7.6	7.7	0.88	42	7.3	7.0	7.3	7.1	0.69	1.55	1.029	400	1.078	12.0	171/33	3	180			48"	30"	2268.5
4/10	GF,SB	1174	2.68	8.6	8.6	8.6	8.6	8.6	7.8	7.8	7.8	7.9	0.80	45	7.3	7.3	7.3	7.3	0.80	1.43	1.032	400	1.078	12.0	180/33	3	120			46"	30"	2268.5	
4/11	GF,SB,GC				8.6	8.7	8.6	8.6	8.7	7.8	7.8	7.7	7.9	0.75	44	7.3	7.0	7.3	6.9	0.59	1.61	1.031	400	1.078	12.0	179/33	3	120			47"	29"	2268.5
4/12	GF,SB,GC				8.6	8.6	8.6	8.6	8.5	7.9	7.9	7.7	7.8	0.90	45	7.3	7.0	7.3	7.0	0.74	1.49	1.032	400	1.079	12.2	181/33	3	90			42"	28"	2268.5
4/13	GF,SB,GC	1132	2.70	8.6	8.6	8.6	8.6	8.6	7.7	8.1	7.7	7.9	0.88	48	7.3	7.0	7.3	7.0	0.60	1.57	1.034	400	1.077	11.9	176/33	3	90			47"	29"	2269.0 (1.0mg)	
4/14	GF,GC				8.6	8.6	8.5	8.6	8.7	7.7	7.8	7.7	8.0	0.95	45	7.3	7.1	7.3	7.1	0.87	1.56	1.039	400	1.079	12.2	174/33	3	120			50"	25"	2269.0
4/15	GC				8.6	8.6	8.7	8.6	8.6	7.7	8.0	7.7	8.0	0.75	42	7.3	7.2	7.3	7.1	0.67	1.53	1.037	400	1.077	11.9	177/33	3	90			40"	29"	2269.0
4/16	SB				8.6	8.6	8.7	8.6	8.6	7.7	8.1	7.7	8.0	0.93	40	7.3	7.1	7.3	7.0	0.76	1.55	1.038	400	1.075	11.6	173/33	3	120			46"	30"	2269.0
4/17	GF,SB	1097	2.65	8.6	8.6	8.7	8.7	8.7	7.8	7.8	7.8	7.8	1.00	43	7.3	7.1	7.3	7.1	0.90	1.53	1.040	400	1.074	11.4	166/33	3	120			36"	17"	2269.0	
4/18	GF,SB,GC				8.6	8.6	8.6	8.5	8.5	7.9	7.9	8.1	8.0	0.70	42	7.3	7.0	7.3	6.9	0.65	1.55	1.039	400	1.076	11.7	193/33	3	120	#3 06:15	12:00	24"	7"	2269.0
4/19	GF,SB,GC				8.6	8.6	8.5	8.6	8.6	7.9	7.8	7.9	8.0	0.80	40	7.2	7.0	7.3	7.1	0.64	1.85	1.037	400	1.077	11.9	205/33	3	90			16"	9"	2268.5 (0.75mg)
4/20	GF,SB,GC	1063	2.70	8.6	8.6	8.5	8.6	8.6	7.7	7.9	7.8	7.9	0.68	49	7.3	7.1	7.3	7.1	0.54	1.47	1.038	400	1.077	11.9	207/33	3	90					2268.5	
4/21	GF,GC	1450		8.6	8.6	8.5	8.7	8.6	7.8	7.7	7.8	8.1	1.00	48	7.3	7.2	7.3	7.1	0.80	1.61	1.043	400	1.081	12.4	197/31	3	190			24"	4"	2269.0 (1.0mg)	
4/22	GC	1950		8.6	8.6	8.7	8.6	8.6	8.2	8.0	8.1	8.0	0.83	45	7.3	7.4	7.4	7.4	0.63	2.42	1.042	400	1.078	12.0	161/37	3	160			16"	5"	2269.0	
4/23	SB			8.6	8.6	8.7	8.6	8.6	8.2	8.3	8.3	8.2	0.89	50	7.5	7.3	7.5	7.2	0.65	2.79	1.042	400	1.077	11.9	163/37	3	130			28"	14"	2269.0	
4/24	GF,SB																																

**CENTRAL TREATMENT PLANT****Month :** Apr-17**MISCELLANEOUS FLOWS**

Date	KT Flow Meter Reading
3/31/2017	0
4/30/2017	61,947,620
Total	61,947,620

Date	006 Flow Meter Reading
3/31/2017	0
4/30/2017	61,468,700
Total	61,468,700

Sweeny Pump Station Reading				
Date	#1 Pump	620 gpm	#2 Pump	500 gpm
3/31/2017	170.0	Hours	785.0	Hours
4/30/2017	170.0	Hours	785.0	Hours
Total Hours	0.0	Hours	0.0	Hours
Total Flow for 004/Sweeny For The Month =	0		0	Gallons

Date	Lined Storage Pond Water Level			
3/31/2017	1,870,000	gal	Elev. =	2270.5
4/30/2017	1,250,000	gal	Elev. =	2269.5

**Lined Storage Pond Influent Flows****PTM Discharge Flow**

Date	Flow (gpm)
04/06/17	20.0
04/20/17	15.0

**Old Mine Line Discharge Flow**

Date	Flow (gpm)
04/06/17	6.0
04/20/17	6.0

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2000-2009										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Jan.</b>	61,000,000	61,677,510	54,606,100	53,066,890	52,223,080	53,150,000	56,050,900	56,281,000	53,465,820	50,936,960
<b>Feb.</b>	57,600,000	45,584,000	52,840,000	46,493,470	48,306,920	49,860,000	51,188,000	50,511,300	49,282,209	48,146,111
<b>March</b>	60,730,000	57,740,360	50,452,060	60,162,290	59,852,720	58,073,000	56,332,830	65,443,650	54,578,130	61,712,540
<b>April</b>	68,680,000	54,846,000	65,583,230	63,335,350	50,715,310	53,775,350	72,039,280	66,636,500	61,690,530	63,055,350
<b>May</b>	<b>97,719,900</b>	57,501,901	76,082,410	63,335,350	53,245,000	54,181,650	72,027,000	63,203,308	86,680,760	70,233,580
<b>June</b>	69,800,000	55,835,590	67,299,960	59,532,434	50,451,170	51,750,000	68,385,600	57,981,410	82,622,590	64,623,180
<b>July</b>	63,698,850	53,652,330	64,820,120	66,252,746	56,538,980	55,255,000	64,054,000	58,282,900	66,324,500	61,535,000
<b>Aug.</b>	66,707,120	45,289,000	58,212,940	62,074,750	52,002,140	49,970,000	64,621,000	55,335,900	65,168,620	56,446,670
<b>Sept.</b>	55,797,530	50,276,020	60,140,460	43,789,000	49,208,020	49,987,000	54,515,270	50,471,870	61,074,020	57,006,430
<b>Oct.</b>	60,424,720	50,660,840	54,485,871	52,869,290	59,601,690	52,807,000	57,610,030	50,086,330	58,666,300	55,830,000
<b>Nov.</b>	53,408,660	50,660,840	51,072,259	47,600,000	51,948,000	50,722,600	55,191,700	50,779,040	52,041,780	54,956,800
<b>Dec.</b>	56,414,870	53,464,780	56,034,000	56,413,080	56,770,000	54,904,400	60,486,900	53,716,210	55,727,260	54,542,700
<b>Totals</b>	771,981,650	637,189,171	711,629,410	674,924,650	640,863,030	634,436,000	732,502,510	678,729,418	747,322,519	699,025,321

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2010-2019										
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Jan.</b>	55,503,180	61,797,170	58,434,610	<b>61,855,400</b>	57,478,450	58,440,540	52,196,730	49,352,650		
<b>Feb.</b>	50,819,910	54,556,227	57,763,170	59,383,290	54,607,950	<b>59,767,470</b>	53,694,400	53,675,440		
<b>March</b>	54,691,420	61,373,630	<b>67,236,650</b>	66,264,780	65,396,350	64,468,230	63,967,920	58,977,410		
<b>April</b>	56,255,340	65,687,340	<b>81,233,630</b>	69,619,100	65,618,770	63,056,840	63,323,620	61,947,620		
<b>May</b>	58,825,640	84,365,390	<b>86,826,340</b>	71,496,380	80,598,590	61,898,200	58,147,240			
<b>June</b>	56,770,200	79,985,540	<b>83,440,990</b>	64,663,900	65,623,330	56,368,540	53,149,810			
<b>July</b>	56,727,510	<b>79,346,330</b>	74,315,690	62,844,790	63,425,030	55,655,000	56,521,710			
<b>Aug.</b>	56,239,370	<b>70,377,570</b>	68,986,900	58,459,380	61,486,270	55,316,100	53,293,430			
<b>Sept.</b>	54,109,980	60,404,280	<b>62,270,300</b>	58,097,500	56,279,590	53,890,000	49,796,420			
<b>Oct.</b>	55,480,200	<b>62,403,480</b>	59,991,850	58,325,780	60,659,850	52,082,800	52,417,120			
<b>Nov.</b>	54,856,880	<b>58,430,700</b>	57,184,220	56,215,000	55,065,100	49,812,540	53,815,710			
<b>Dec.</b>	54,607,330	58,617,700	<b>61,750,390</b>	56,932,530	59,770,540	51,521,900	52,063,110			
<b>Totals</b>	664,886,960	797,345,357	<b>819,434,740</b>	<b>744,157,830</b>	<b>746,009,820</b>	<b>682,278,160</b>	<b>662,387,220</b>	<b>223,953,120</b>	<b>0</b>	<b>0</b>

Yellow indicates record monthly flow as well as record annual flow

## KELLOGG TUNNEL ZINC DATA

Month	Concentration (mg/L)													
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Jan.		86	81	79	63	70	61	72	57	68	41	46	50	53
Feb.		86	91	96	55	72	57	95	58	68	41	68	52	50
March		94	116	86	65	68	53	86	58	69	58	81	63	124
April		98	121	140	85	80	50	137	176	86	107	92	115	238
May		105	231	179	318	136	57	377	215	150	177	87	138	
June		107	182	118	271	143	68	347	164	106	131	78	108	
July		90	144	111	198	117	75	181	136	87	87	75	81	
Aug.		87	112	92	132	94	79	130	110	86	76	66	76	
Sept.		84	107	80	107	76	81	132	107	75	66	63	68	
Oct.	59	81	100	88	99	75	70	86	70	67	63	54	52	
Nov.	66	79	88	88	104	63	57	95	71	70	55	44	52	116
Dec.	67	62	78	65	76	59	61	88	69	54	49	55	50	
average	64	88	121	102	131	88	64	152	108	82	79	67	75	
lime usage (tons/day)	2.59	3.23	2.76	4.78	3.24	2.16	4.31	3.93	2.46	2.70	1.99	1.93		
Zinc Conc. Increase/Decrease	37%	-16%	29%	-33%	-27%	138%	-29%	-24%	-4%	-15%	12%			
Lime Usage Increase/Decrease	25%	-15%	73%	-32%	-33%	100%	-9%	-37%	10%	-26%	-3%			

**Bunker Hill Sludge Pond**  
**Sludge Staff Gauge Reading Summary**

Date	Sludge Level (feet)	Estimated Sludge Elevation	Estimated Remaining Height to Road (feet)
05/19/00	0.45		
04/16/02	0.80		
05/28/02	1.10		
06/13/02	1.65		
07/01/02	1.70		
07/16/02	1.70		
08/27/02	1.70		
10/01/02	1.70		
11/06/02	1.75		
01/06/03	1.80		
02/19/03	1.90		
02/19/03	1.90		
03/31/03	2.60		
04/01/03	2.60		
05/07/03	2.80		
09/19/03	2.65		
01/01/04	2.70		
03/22/04	2.36		
04/29/04	2.50	2311	11.0
08/09/05	2.28	2310.8	11.2
09/30/06	2.85	2311.4	10.7
03/20/07	2.80	2311.3	10.7
6/30/2007	2.90	2311.4	10.6
4/30/2009	5.00	2313.5	8.50
10/31/2009	5.20	2313.7	8.30
7/31/2010	5.25	2313.8	8.25
3/31/2011	5.58	2314.1	7.92
4/30/2011	5.75	2314.3	7.75
5/30/2011	8.60	2317.1	4.90
7/5/2011	7.20	2315.7	6.30
9/26/2011	6.80	2315.3	6.70
2/4/2013	7.80	2316.3	5.70
4/30/2013	8.00	2316.5	5.50
5/12/2014	7.95	2316.5	5.55
11/20/2014	8.26	2316.8	5.24
4/20/2015	8.50	2317.0	5.00
4/1/2016	8.55	2317.1	4.95
9/1/2016	8.50	2317.0	5.00
3/20/2017	8.30	2316.8	5.20
3/28/2017	8.45	2317.0	5.05
<b>6157</b>	<b>8.00</b>	<b>Total Change, Days and Feet</b>	
Note 3	0.47	Average Rise Per Year (Includes Lined Pond Cleanout), feet	
	5.05	Estimated average remaining total height to perimeter road, feet	
	2.0	Assumed desired end-of-life freeboard, feet	
	3.1	Estimated available storage height, feet	
	<b>6.4</b>	<b>Estimated Remaining Life (years)</b>	
	8/31/2023		

Notes:

1) Pond perimeter road centerline elevation = 2322.0 feet from CIA as-builts Drawing C-28

Bunker Hill Superfund Site						
Kellogg, Idaho						
Central Treatment Plant Review						
Month: Apr-17						
SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION
LOCATION			RESULTS			% RPD
006/CTP Outfall	04/03/17	Cadmium	0.009	0.009	mg/L	0.0%
		Lead	0.004	0.004	mg/L	0.0%
Lab Duplicate		Manganese	4.80	4.76	mg/L	0.8%
		Zinc	0.346	0.352	mg/L	-1.7%
		pH	6.74	6.72	s.u.	0.3%
		TSS	0.8	0.8	mg/L	0.0%
Kellogg Tunnel	04/03/17	Cadmium	0.606	0.602	mg/L	0.7%
		Lead	0.727	0.724	mg/L	0.4%
Lab Duplicate		Manganese	75.4	74.6	mg/L	1.1%
		Zinc	222	225	mg/L	-1.3%
		pH			s.u.	
		TSS			mg/L	
006/CTP Outfall	04/05/17	Cadmium	0.010	0.010	0.0104	0.0%
		Lead	0.004	0.004	0.0036	0.0%
Lab Duplicate		Manganese	4.76	4.74	4.76	0.4%
		Zinc	0.369	0.365	0.369	1.1%
		pH	6.56	6.76	6.56	-3.0%
		TSS	0.6	0.8	0.6	-28.6%
PTM Discharge	04/06/17	Cadmium	1.26	1.27	mg/L	-0.8%
		Lead	0.009	0.010	mg/L	-15.5%
QC Sample		Manganese			mg/L	
		Zinc	12.1	12.2	mg/L	-0.8%
		pH	7.04	6.97	s.u.	1.0%
		TSS	0.0	0.2	mg/L	-200.0%
Performance Evaluation Sample	04/06/17	Cadmium	0.058	0.050	mg/L	14.3%
(CTPXX-04-06-17)		Lead	0.310	0.300	mg/L	3.3%
		Zinc	0.837	0.730	mg/L	13.7%
					mg/L	
CTPXX-04-06-17	04/06/17	Cadmium	0.058	0.058	mg/L	0.3%
		Lead	0.310	0.307	mg/L	1.0%
Lab Duplicate		Manganese	0.002	0.002	mg/L	0.0%
		Zinc	0.837	0.831	mg/L	0.7%
006/CTP Outfall	04/07/17	Cadmium	0.015	0.015	mg/L	-2.7%
		Lead	0.004	0.004	mg/L	0.0%
Lab Duplicate		Manganese	4.41	4.38	mg/L	0.7%
		Zinc	0.568	0.568	mg/L	0.0%
		pH	6.67	6.70	s.u.	-0.4%
		TSS	0.8	0.6	mg/L	28.6%
006/CTP Outfall	04/10/17	Cadmium	0.011	0.011	mg/L	0.0%
		Lead	0.004	0.004	mg/L	0.0%
Lab Duplicate		Manganese	2.53	2.57	mg/L	-1.6%
		Zinc	0.491	0.501	mg/L	-2.0%
		pH	6.43	6.46	s.u.	-0.5%
		TSS	1.0	0.8	mg/L	22.2%
Kellogg Tunnel	04/10/17	Cadmium	0.759	0.772	mg/L	-1.7%

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
Lab Duplicate		Lead	0.750	0.765	mg/L	-2.0%	99%
		Manganese	60.0	61.2	mg/L	-2.0%	115%
		Zinc	285	276	mg/L	3.2%	
		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	04/12/17	Cadmium	0.009	0.009	mg/L	3.3%	102%
		Lead	0.004	0.004	mg/L	0.0%	93%
		Manganese	1.96	1.99	mg/L	-1.5%	101%
		Zinc	0.444	0.443	mg/L	0.2%	94%
		pH	6.52	6.51	s.u.	0.2%	
Performance Evaluation Sample (CTPXX-04-13-17)	04/13/17	TSS	1.2	1.2	mg/L	0.0%	
		Cadmium	0.058	0.050	mg/L	14.5%	
		Lead	0.307	0.300	mg/L	2.3%	
		Zinc	0.840	0.730	mg/L	14.0%	
					mg/L		
Lab Duplicate	04/13/17	Cadmium	0.058	0.059	mg/L	-1.2%	102%
		Lead	0.307	0.311	mg/L	-1.3%	101%
		Manganese	0.005	0.002	mg/L	73.7%	100%
		Zinc	0.840	0.849	mg/L	-1.1%	102%
006/CTP Outfall	04/14/17	Cadmium	0.009	0.009	mg/L	1.1%	
		Lead	0.004	0.004	mg/L	5.4%	
		Manganese	1.78	1.78	mg/L	0.0%	
		Zinc	0.449	0.447	mg/L	0.4%	
		pH	6.48	6.49	s.u.	-0.2%	
QC Sample		TSS	0.8	0.6	mg/L	28.6%	
		Cadmium	0.009	0.009	mg/L	1.1%	103%
		Lead	0.004	0.004	mg/L	5.4%	97%
		Manganese	1.78	1.78	mg/L	0.0%	103%
		Zinc	0.449	0.447	mg/L	0.4%	99%
Lab Duplicate		pH	6.48	6.49	s.u.	-0.2%	
		TSS	0.8	0.6	mg/L	28.6%	
006/CTP Outfall	04/17/17	Cadmium	0.009	0.009	mg/L	1.2%	101%
		Lead	0.004	0.004	mg/L	0.0%	92%
		Manganese	1.57	1.57	mg/L	0.0%	96%
		Zinc	0.461	0.460	mg/L	0.2%	94%
		pH	6.44	6.42	s.u.	0.3%	
Kellogg Tunnel	04/17/17	TSS	0.6	0.6	mg/L	0.0%	
		Cadmium	0.686	0.698	mg/L	-1.7%	101%
		Lead	0.671	0.682	mg/L	-1.6%	96%
		Manganese	53.1	54.4	mg/L	-2.4%	
		Zinc	253	260	mg/L	-2.7%	
Lab Duplicate		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	04/19/17	Cadmium	0.010	0.009	mg/L	4.3%	103%
		Lead	0.004	0.004	mg/L	0.0%	94%
		Manganese	1.63	1.62	mg/L	0.6%	96%
		Zinc	0.458	0.455	mg/L	0.7%	95%
		pH	6.48	6.47	s.u.	0.2%	
PTM Discharge	04/20/17	TSS	0.6	0.6	mg/L	0.0%	
		Cadmium	1.32	1.31	mg/L	0.8%	101%

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA
LOCATION			RESULTS			% RPD	% RECOVERY
Lab Duplicate		Lead	0.006	0.007	mg/L	-22.9%	98%
		Manganese	0.499	0.492	mg/L	1.4%	100%
		Zinc	12.1	12.0	mg/L	0.8%	88%
Performance Evaluation Sample (CTPXX-04-20-17)	04/20/17	Cadmium	0.059	0.050	mg/L	16.3%	
		Lead	0.317	0.300	mg/L	5.5%	
		Zinc	0.779	0.730	mg/L	6.5%	
					mg/L		
006/CTP Outfall	04/21/17	Cadmium	0.010	0.010	mg/L	0.0%	105%
		Lead	0.004	0.004	mg/L	0.0%	96%
Lab Duplicate		Manganese	1.63	1.65	mg/L	-1.2%	104%
		Zinc	0.454	0.452	mg/L	0.4%	97%
		pH	6.47	6.30	s.u.	2.7%	
		TSS	0.6	0.6	mg/L	0.0%	
006/CTP Outfall	04/24/17	Cadmium	0.005	0.005	mg/L	0.0%	104%
		Lead	0.004	0.004	mg/L	0.0%	98%
Lab Duplicate		Manganese	4.18	4.13	mg/L	1.2%	88%
		Zinc	0.164	0.164	mg/L	0.0%	99%
		pH	7.06	7.05	s.u.	0.1%	
		TSS	0.6	0.4	mg/L	40.0%	
Kellogg Tunnel	04/24/17	Cadmium	0.372	0.365	mg/L	1.9%	104%
		Lead	0.908	0.893	mg/L	1.7%	96%
Lab Duplicate		Manganese	101	100	mg/L	1.0%	
		Zinc	158	157	mg/L	0.6%	
		pH			s.u.		
		TSS			mg/L		
006/CTP Outfall	04/26/17	Cadmium	0.004	0.004	mg/L	2.8%	102%
		Lead	0.004	0.004	mg/L	0.0%	95%
Lab Duplicate		Manganese	3.89	3.78	mg/L	2.9%	85%
		Zinc	0.131	0.126	mg/L	3.9%	96%
		pH	7.04	7.05	s.u.	-0.1%	
		TSS	1.6	1.6	mg/L	0.0%	
Performance Evaluation Sample (CTPXX-04-27-17)	04/27/17	Cadmium	0.056	0.050	mg/L	10.8%	
		Lead	0.296	0.300	mg/L	-1.3%	
		Zinc	0.912	0.730	mg/L	22.2%	
					mg/L		
CTPXX-04-27-17	04/27/17	Cadmium	0.056	0.055	mg/L	1.3%	95%
		Lead	0.296	0.293	mg/L	1.0%	93%
Lab Duplicate		Manganese	0.002	0.003	mg/L	-4.1%	95%
		Zinc	0.912	0.895	mg/L	1.9%	92%
		pH			s.u.	0.0%	
		TSS	1.0	1.0	mg/L	0.0%	
QC Sample		Cadmium	3.50	3.52	mg/L	-0.6%	97%
		Zinc	0.122	0.124	mg/L	-1.6%	91%
		pH	7.04	7.04	s.u.	0.0%	
		TSS	1.0	1.0	mg/L	0.0%	
April 2017, Completeness		Cadmium	26	Valid	Total	26	
		Lead	26	Valid	Total	26	
		Manganese	22	Valid	Total	22	
		Zinc	26	Valid	Total	26	
		pH	14	Valid	Total	14	

SAMPLE	DATE	PARAMETER	VALUE	QC/dup	UNITS	PRECISION	MATRIX SPIKE DATA				
LOCATION			RESULTS			% RPD	% RECOVERY				
		TSS	14	Valid	Total	14					
<b>Monthly Performance Evaluation</b>											
<b>Acceptable Quantitation Range</b>											
Analyte		Concentration		Acceptable Quantitation Range							
			(mg/L)		(mg/L)						
Cadmium			0.050	0.040-0.060							
Lead			0.300	0.240-0.360							
Zinc			0.730	0.584-0.876							
<b>Note:</b> The PE quantitation range (listed above) from our PE sample source is less than required in the contract. The contract limits (listed below) have been utilized for this evaluation.											
<b>Note:</b> Performance evaluation samples have been given the designation "CTPXX" for purposes of blind submission to the analytical laboratory.											
<b>Analytical Requirements</b>											
	Quantitation		Accuracy		Completeness						
Cadmium	$\leq 0.025$ mg/L		80-120%		90%						
Lead	$\leq 0.15$ mg/L		80-120%		90%						
Manganese	$\leq 0.025$ mg/L		80-120%		90%						
Zinc	$\leq 0.30$ mg/L		80-120%		90%						
pH	$\leq 0.1$ pH unit		90-110%		90%						
TSS	$\leq 15$ mg/L		75-125%		90%						

Bunker Hill Superfund Site							
<b>Kellogg, Idaho</b>							
<b>Central Treatment Plant Review</b>							
Month: Apr-17							
CONCENTRATION (mg/L)							
SAMPLE	DATE	PARAMETER	SPIKE	DUPLICATE	SPIKE	PRECISION	
LOCATION			ADDED	RESULT	RESULT	% RPD	
006/CTP Outfall	04/03/17	Cadmium	1.00	1.02	1.02	0.1%	
<b>MS/MSD</b>		Lead	1.00	0.915	0.913	0.3%	
		Manganese	1.00	5.74	5.77	0.4%	
		Zinc	1.00	1.28	1.27	0.8%	
Kellogg Tunnel	04/03/17	Cadmium	1.00	1.61	1.61	0.2%	
<b>MS/MSD</b>		Lead	1.00	1.67	1.66	0.2%	
		Manganese	1.00	76.7	76.0	0.9%	
		Zinc	1.00	224	226	0.6%	
006/CTP Outfall	04/05/17	Cadmium	1.00	1.02	1.01	1.0%	
<b>MS/MSD</b>		Lead	1.00	0.925	0.925	0.0%	
		Manganese	1.00	5.73	5.66	1.3%	
		Zinc	1.00	1.29	1.30	0.7%	
PE Sample	04/06/17	Cadmium	1.00	1.06	1.06	0.3%	
<b>MS/MSD</b>		Lead	1.00	1.30	1.30	0.3%	
CTPXX-04-06-17		Manganese	1.00	0.995	1.01	1.5%	
		Zinc	1.00	1.81	1.82	0.4%	
006/CTP Outfall	04/07/17	Cadmium	1.00	1.06	1.05	0.5%	
<b>MS/MSD</b>		Lead	1.00	0.957	0.950	0.7%	
		Manganese	1.00	5.29	5.39	1.8%	
		Zinc	1.00	1.53	1.52	0.6%	
006/CTP Outfall	04/10/17	Cadmium	1.00	1.05	1.06	0.9%	
<b>MS/MSD</b>		Lead	1.00	0.966	0.972	0.6%	
		Manganese	1.00	3.54	3.59	1.6%	
		Zinc	1.00	1.47	1.48	0.6%	
Kellogg Tunnel	04/10/17	Cadmium	1.00	1.81	1.81	0.3%	
<b>MS/MSD</b>		Lead	1.00	1.75	1.74	0.4%	
		Manganese	1.00	61.7	61.2	0.9%	
		Zinc	1.00	284	280	1.5%	
006/CTP Outfall	04/12/17	Cadmium	1.00	1.02	1.03	0.7%	
<b>MS/MSD</b>		Lead	1.00	0.924	0.934	1.1%	
		Manganese	1.00	2.96	2.98	0.7%	
		Zinc	1.00	1.37	1.39	0.9%	
PE Sample	04/13/17	Cadmium	1.00	1.06	1.08	1.6%	
<b>MS/MSD</b>		Lead	1.00	1.30	1.32	1.2%	
CTPXX-04-13-17		Manganese	1.00	0.994	1.00	0.7%	
		Zinc	1.00	1.83	1.86	1.5%	
006/CTP Outfall	04/14/17	Cadmium	1.00	1.04	1.04	0.1%	
<b>MS/MSD</b>		Lead	1.00	0.976	0.977	0.2%	
		Manganese	1.00	2.76	2.81	1.9%	
		Zinc	1.00	1.43	1.44	0.4%	
006/CTP Outfall	04/17/17	Cadmium	1.00	1.01	1.01	0.4%	
<b>MS/MSD</b>		Lead	1.00	0.917	0.918	0.2%	
		Manganese	1.00	2.54	2.54	0.1%	
						Sample conc. >> spike level	

		Zinc	1.00	1.47	1.40	5.0%		
Kellogg Tunnel	04/17/17	Cadmium	1.00	1.70	1.70	0.4%		
<b>MS/MSD</b>		Lead	1.00	1.63	1.63	0.2%		
		Manganese	1.00	54.1	54.8	0.1%	Sample conc. >> spike level	
		Zinc	1.00	263	258	5.0%		
006/CTP Outfall	04/19/17	Cadmium	1.00	1.02	1.04	1.8%		
<b>MS/MSD</b>		Lead	1.00	0.930	0.943	1.4%		
		Manganese	1.00	2.58	2.60	0.6%	Sample conc. >> spike level	
		Zinc	1.00	1.40	1.41	0.9%		
PTM Discharge	04/20/17	Cadmium	1.00	2.31	2.33	1.0%		
<b>MS/MSD</b>		Lead	1.00	0.958	0.990	0.5%		
		Manganese	1.00	1.48	1.50	0.8%	Sample conc. >> spike level	
		Zinc	1.00	12.7	12.9	1.6%		
006/CTP Outfall	04/21/17	Cadmium	1.00	1.05	1.06	1.1%		
<b>MS/MSD</b>		Lead	1.00	0.951	0.963	1.3%		
		Manganese	1.00	2.63	2.67	1.7%	Sample conc. >> spike level	
		Zinc	1.00	1.40	1.42	1.5%		
006/CTP Outfall	04/24/17	Cadmium	1.00	1.04	1.04	0.4%		
<b>MS/MSD</b>		Lead	1.00	0.973	0.980	0.7%		
		Manganese	1.00	5.00	5.10	1.2%	Sample conc. >> spike level	
		Zinc	1.00	1.14	1.15	0.9%		
Kellogg Tunnel	04/24/17	Cadmium	1.00	1.40	1.41	0.4%		
<b>MS/MSD</b>		Lead	1.00	1.86	1.87	0.2%		
		Manganese	1.00	103	102	0.1%	Sample conc. >> spike level	
		Zinc	1.00	162	161	5.0%		
006/CTP Outfall	04/26/17	Cadmium	1.00	1.03	1.03	0.3%		
<b>MS/MSD</b>		Lead	1.00	0.946	0.946	0.0%		
		Manganese	1.00	4.82	4.75	1.5%	Sample conc. >> spike level	
		Zinc	1.00	1.09	1.09	0.1%		
PE Sample	04/27/17	Cadmium	1.00	0.995	1.00	0.9%		
<b>MS/MSD</b>		Lead	1.00	1.22	1.23	0.5%		
CTPXX-04-27-17		Manganese	1.00	0.946	0.947	0.2%	Sample conc. >> spike level	
		Zinc	1.00	1.82	1.84	1.1%		
006/CTP Outfall	04/28/17	Cadmium	1.00	0.974	0.974	0.0%		
<b>MS/MSD</b>		Lead	1.00	0.895	0.893	0.2%		
		Manganese	1.00	4.40	4.47	1.5%	Sample conc. >> spike level	
		Zinc	1.00	1.03	1.03	0.8%		

USACE PRIME CONTRACTOR Monthly Record of Work-Related Injuries/Illnesses & Exposure									
<p>US Army Corps of Engineers Page 1 of 2</p> <p>Month: <u>April 2017</u></p> <p>Project Title: <u>USACE Environmental Project Office</u></p> <p>Contractor Name: <u>Southern Contracting, Inc.</u> Contract Number: <u>WES/0005/15-2008</u> Site &amp; Master Inspection Plan: <u>Bullock Hill</u></p> <p>Address: <u>1000 S. Main Street, Suite 100, Bullock Hill, NC 27010</u></p> <p>Phone: <u>(336) 837-1000</u></p> <p>Fax: <u>(336) 837-1037</u></p> <p>Date: <u>5/3/17</u></p>									
Contractor	Type	Project	First Incident Number & A.R.	What is the entire location where incident occurred	Incident Reported Date	Job Function or Task Work	Job Location or Inspection Area	On-Hand number of employees (total)	Areas from which sampled (days)
Laser Glass Studio	Manufacturing	Project 1	1000 S. Main Street, Bullock Hill, NC	1000 S. Main Street, Bullock Hill, NC	04/17/2017	Production Worker	Job Function or Inspection Area	1	0

**No accidents reported**

## CTP Mine Water Line Open Channel Inspection Form

**Note:** This form should be utilized weekly during the regular channel cleanout.  
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: April 06, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	<b>Good</b> / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	<b>Good</b> / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	<b>Good</b> / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	<b>Good</b> / Poor		Ok
Bottom Joints (during low flows)	<b>Good</b> / Poor		Ok
Trash Rack Assembly Rail Units	<b>Good</b> / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	<b>Good</b> / Poor	Removed debris from trash racks	
Parshall Flume	<b>Good</b> / Poor	Check fiberglass and joint connections	Ok

General Comments:

Bunker mine has one pump operating at this time.

The Kellogg Tunnel flow at this time is 1.67 mgd (1160 gpm), pH at this time is 2.69

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

## CTP Mine Water Line Open Channel Inspection Form

**Note:** This form should be utilized weekly during the regular channel cleanout.  
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: April 13, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	<b>Good</b> / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	<b>Good</b> / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	<b>Good</b> / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	<b>Good</b> / Poor		Ok
Bottom Joints (during low flows)	<b>Good</b> / Poor		Ok
Trash Rack Assembly Rail Units	<b>Good</b> / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	<b>Good</b> / Poor	Removed debris from trash racks	
Parshall Flume	<b>Good</b> / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.63 mgd (1132 gpm), pH at this time is 2.70.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.

## CTP Mine Water Line Open Channel Inspection Form

**Note:** This form should be utilized weekly during the regular channel cleanout.  
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: April 20, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	<b>Good</b> / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	<b>Good</b> / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	<b>Good</b> / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	<b>Good</b> / Poor		Ok
Bottom Joints (during low flows)	<b>Good</b> / Poor		Ok
Trash Rack Assembly Rail Units	<b>Good</b> / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	<b>Good</b> / Poor	Removed debris from trash racks	
Parshall Flume	<b>Good</b> / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 1.53 mgd (1063 gpm), pH at this time is 2.70.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed no sediment from the flume area during this cleaning event.

## CTP Mine Water Line Open Channel Inspection Form

**Note:** This form should be utilized weekly during the regular channel cleanout.  
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: April 27, 2017

Inspected By:

Gary Coast, Steve Brunner

Item Inspected	Condition	Comments	
Channel Sections and Joints	<b>Good</b> / Poor	Check for cracks	Ok
Channel Inlet Connection @ KT	<b>Good</b> / Poor	Check for cracks	Ok
Channel Outlet/Pipeline Inlet	<b>Good</b> / Poor	Check for cracks	Ok
Channel Bottom (during low flows)	<b>Good</b> / Poor		Ok
Bottom Joints (during low flows)	<b>Good</b> / Poor		Ok
Trash Rack Assembly Rail Units	<b>Good</b> / Poor	Check for corrosion and bolt tightness	Ok
Trash Racks	<b>Good</b> / Poor	Removed debris from trash racks	
Parshall Flume	<b>Good</b> / Poor	Check fiberglass and joint connections	Ok

General Comments:

The Kellogg Tunnel flow at this time is 2.80 mgd (1940 gpm), pH at this time is 2.67.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators collected no sediment from the flume area.



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 03-Apr-17
		Received: 03-Apr-17
		Reported: 04-Apr-17 14:43

LAB #	X7D0001-01	-	-	-	-	-
SAMPLE ID	006-04-03-17	-	-	-	-	-
	04/03/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0090 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	4.80	-	-	-	-
Zinc	0.020 mg/L	0.346	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.74 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 30-Mar-17
		Received: 31-Mar-17
		Reported: 04-Apr-17 14:50

LAB #	X7CD661-01	X7CD661-02	-	-	-	-
SAMPLE ID	KT-03-30-17	CTPXX-03-30-17	-	-	-	-
	03/30/2017 07:30	03/30/2017 07:50	-	-	-	-
<b>Reporting Limit</b>						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/l	0.596	0.0534	-	-	-
Lead	0.0500 mg/l	0.712	0.288	-	-	-
Manganese	0.0200 mg/l	72.1	-	-	-	-
Zinc	0.0200 mg/l	215 [1]	0.814	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.87 [2]	-	-	-	-
Total Susp. Solids	5.0 mg/l	10.0	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 05-Apr-17
		Received: 05-Apr-17
		Reported: 06-Apr-17 14:22

LAB #	X7D0056-01	-	-	-	-	-
SAMPLE ID	006-04-05-17	-	-	-	-	-
		04/05/2017 06:00	-	-	-	-
		Reporting Limit				

**Metals (Total) (Water)**

Cadmium	0.0100 mg/L	0.0104	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	4.76	-	-	-	-
Zinc	0.020 mg/L	0.369	-	-	-	-

**Classical Chemistry Parameters (Water)**

pH	pH Units	6.56 [1] [3]	-	-	-	-
Total Susp. Solids	mg/L	5.0	0.6 [2]	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929      Kellogg ID 83837-0929      (208) 784-1258      Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 06-Apr-17
		Received: 07-Apr-17
		Reported: 10-Apr-17 15:31

LAB #	X7D0130-01	X7D0130-02	X7D0130-03	X7D0130-04	X7D0130-05	X7D0130-06
SAMPLE ID	KT-04-06-17	PTM-04-06-17	QC-04-06-17	RB-04-06-17	TB-04-06-17	CTP00-04-06-17
	04/06/2017 09:00	04/06/2017 08:10	04/06/2017 08:10	04/06/2017 08:20	04/06/2017 08:20	04/06/2017 09:45

**Metals (Total) (Water)**

Cadmium	0.0100 mg/l	0.852	1.26	1.27	<0.0009 [4]	<0.0009 [4]	0.0577
Lead	0.0500 mg/l	0.791	0.0089 [3]	0.0104 [3]	<0.0036 [4]	<0.0036 [4]	0.310
Manganese	0.0200 mg/l	64.0	-	-	-	-	-
Zinc	0.0200 mg/l	296 [1]	12.1	12.2	0.007 [3]	<0.003 [4]	0.837

**Classical Chemistry Parameters (Water)**

pH	pH Units	2.75 [2]	7.04 [2]	6.97 [2]	-	-	-
Total Susp. Solids	mg/l	5.0	6.0	<0.0 [4]	0.2 [3]	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 07-Apr-17
		Received: 07-Apr-17
		Reported: 10-Apr-17 15:11

LAB #	X7D0129-01	-	-	-	-	-
SAMPLE ID	006-04-07-17	-	-	-	-	-
	04/07/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0148	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	4.41	-	-	-	-
Zinc	0.020 mg/L	0.568	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.67 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 10-Apr-17
		Received: 10-Apr-17
		Reported: 11-Apr-17 12:43

LAB #	X7D0171-01	-	-	-	-	-
SAMPLE ID	006-04-10-17	-	-	-	-	-
	04/10/2017 05:30	-	-	-	-	-
Reporting Limit						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0111	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	2.53	-	-	-	-
Zinc	0.0200 mg/L	0.491	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.43 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.0 [3]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 10-Apr-17
		Received: 10-Apr-17
		Reported: 11-Apr-17 14:12

LAB #	X7D0172-01	-	-	-	-	-
SAMPLE ID	KT-04-10-17	-	-	-	-	-
	04/10/2017 07:30	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.759	-	-	-	-
Lead	0.0500 mg/L	0.750	-	-	-	-
Manganese	0.0200 mg/L	60.0 [4]	-	-	-	-
Zinc	0.020 mg/L	285 [1] [4]	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.77 [2]	-	-	-	-
Total Susp. Solids	mg/L	6.0	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 12-Apr-17
		Received: 12-Apr-17
		Reported: 13-Apr-17 13:21

LAB #	X7D0216-01	-	-	-	-	-
SAMPLE ID	006-04-12-17	-	-	-	-	-
	04/12/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0099 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	1.96	-	-	-	-
Zinc	0.020 mg/L	0.444	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.52 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.2	-	-	-	-

Kirby Gray  
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 13-Apr-17
		Received: 14-Apr-17
		Reported: 18-Apr-17 14:17

LAB #	X7D0280-01	X7D0280-02	-	-	-	-
SAMPLE ID	KT-04-13-17	CTP904-04-13-17	-	-	-	-
	04/13/2017 07:30	04/13/2017 07:50	-	-	-	-
<b>Reporting Limit</b>						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/l	0.779	0.0578	-	-	-
Lead	0.0500 mg/l	0.728	0.307	-	-	-
Manganese	0.0200 mg/l	60.7	-	-	-	-
Zinc	0.0200 mg/l	294	0.840	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.80 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/l	7.0	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929

(208) 784-1258

Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 14-Apr-17
		Received: 14-Apr-17
		Reported: 17-Apr-17 15:11

LAB #	X7D0279-01	X7D0279-02	-	-	-	-
SAMPLE ID	006-04-14-17	006-04-14-17	-	-	-	-
	04/14/2017 06:00	04/14/2017 06:00	-	-	-	-

Reporting Limit

**Metals (Total) (Water)**

Cadmium	0.0100 mg/L	0.0094 [2]	0.0094 [2]	-	-	-	-
Lead	0.0500 mg/L	0.0038 [2]	0.0046 [2]	-	-	-	-
Manganese	0.0200 mg/L	1.78	1.79	-	-	-	-
Zinc	0.020 mg/L	0.449	0.454	-	-	-	-

**Classical Chemistry Parameters (Water)**

pH	pH Units	6.48 [1]	6.47 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.8 [2]	0.6 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 17-Apr-17
		Received: 17-Apr-17
		Reported: 18-Apr-17 15:20

LAB #	X7D0297-01	-	-	-	-	-
SAMPLE ID	006-04-17-17	-	-	-	-	-
	04/17/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0087 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	1.57	-	-	-	-
Zinc	0.020 mg/L	0.461	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.44 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 17-Apr-17
		Received: 17-Apr-17
		Reported: 18-Apr-17 15:21

LAB #	X7D0298-01	-	-	-	-	-
SAMPLE ID	KT-04-17-17	-	-	-	-	-
	04/17/2017 07:30	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.686	-	-	-	-
Lead	0.0500 mg/L	0.671	-	-	-	-
Manganese	0.0200 mg/L	53.1 [4]	-	-	-	-
Zinc	0.020 mg/L	253 [1] [4]	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.75 [2]	-	-	-	-
Total Susp. Solids	mg/L	8.0	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 19-Apr-17
		Received: 19-Apr-17
		Reported: 20-Apr-17 13:42

LAB #	X7D0335-01	-	-	-	-	-
SAMPLE ID	006-04-19-17	-	-	-	-	-
	04/19/2017 06:00	-	-	-	-	-
Reporting Limit						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0095 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	1.63	-	-	-	-
Zinc	0.020 mg/L	0.058	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.48 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 20-Apr-17
		Received: 21-Apr-17
		Reported: 25-Apr-17 14:46

LAB #	X7D0406-01	X7D0406-02	X7D0406-03	-	-	-
SAMPLE ID	KT-04-20-17	PTM-04-20-17	CTP00X-04-20-17	-	-	-
Reporting Limit	04/20/2017 07:55	04/20/2017 07:40	04/20/2017 07:00	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.652	1.52	0.0572	-	-
Lead	0.0500 mg/L	0.694	0.0058 [3]	0.293	-	-
Manganese	0.0200 mg/L	54.7	0.499	-	-	-
Zinc	0.0200 mg/L	248 [1]	12.1 [4]	0.933	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.79 [2]	6.86 [2]	-	-	-
Total Susp. Solids	5.0 mg/L	8.0	<0.0 [4]	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 21-Apr-17
		Received: 21-Apr-17
		Reported: 24-Apr-17 15:37

LAB #	X7D0405-01	-	-	-	-	-
SAMPLE ID	006-04-21-17	-	-	-	-	-
	04/11/2017 06:00	-	-	-	-	-
Reporting Limit						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0098 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [4]	-	-	-	-
Manganese	0.0200 mg/L	1.63	-	-	-	-
Zinc	0.020 mg/L	0.054	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	6.47 [1] [5]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 24-Apr-17
		Received: 24-Apr-17
		Reported: 25-Apr-17 14:48

LAB #	X7D0437-01	-	-	-	-	-
SAMPLE ID	KT-04-24-17	-	-	-	-	-
	04/24/2017 07:30	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.572	-	-	-	-
Lead	0.0500 mg/L	0.908	-	-	-	-
Manganese	0.0200 mg/L	105 [1][4]	-	-	-	-
Zinc	0.0200 mg/L	158 [1][4]	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	2.86 [2]	-	-	-	-
Total Susp. Solids	mg/L	176	-	-	-	-

Kirby Gray  
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 24-Apr-17
		Received: 24-Apr-17
		Reported: 25-Apr-17 14:47

LAB #	X7D0436-01	-	-	-	-	-
SAMPLE ID	006-04-24-17	-	-	-	-	-
	04/24/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0051 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	4.18	-	-	-	-
Zinc	0.020 mg/L	0.164	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	7.06 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	0.6 [2]	-	-	-	-

Kirby Gray  
Technical Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 26-Apr-17
		Received: 26-Apr-17
		Reported: 27-Apr-17 14:35

LAB #	X7D0470-01	-	-	-	-	-
SAMPLE ID	006-04-26-17	-	-	-	-	-
	04/26/2017 06:00	-	-	-	-	-
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0036 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	3.89	-	-	-	-
Zinc	0.020 mg/L	0.131	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	7.04 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.6	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 27-Apr-17
		Received: 28-Apr-17
		Reported: 01-May-17 13:02

LAB #	X7D0533-01	X7D0533-02	X7D0533-03	-	-	-
SAMPLE ID	KT-04-27-17	QC-04-27-17	CTP00X-04-27-17	-	-	-
	04/27/2017 07:30	04/27/2017 07:30	04/27/2017 07:30	-	-	-

Reporting Limit

**Metals (Total) (Water)**

Cadmium	0.0100 mg/L	0.353	0.356	0.0557	-	-	-
Lead	0.0500 mg/L	0.806	0.810	0.296	-	-	-
Manganese	0.0200 mg/L	92.4 [1]	93.5 [1]	-	-	-	-
Zinc	0.0200 mg/L	150 [1]	152 [1]	0.912	-	-	-

**Classical Chemistry Parameters (Water)**

pH	pH Units	2.90 [2]	2.89 [2]	-	-	-	-
Total Susp. Solids	mg/L	121	123	-	-	-	-

John Kern  
Laboratory Director



One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

Ferguson Contracting 901 N. Division Pinehurst, ID 83850	Project: BHCTP	Sampled: 28-Apr-17
		Received: 28-Apr-17
		Reported: 01-May-17 13:01

LAB #	X7D0531-01	-	-	-	-	-
SAMPLE ID	006-04-28-17	-	-	-	-	-
	04/18/2017 06:20	-	-	-	-	-
Reporting Limit						
<b>Metals (Total) (Water)</b>						
Cadmium	0.0100 mg/L	0.0034 [2]	-	-	-	-
Lead	0.0500 mg/L	<0.0036 [3]	-	-	-	-
Manganese	0.0200 mg/L	3.50	-	-	-	-
Zinc	0.0200 mg/L	0.122	-	-	-	-
<b>Classical Chemistry Parameters (Water)</b>						
pH	pH Units	7.04 [1]	-	-	-	-
Total Susp. Solids	5.0 mg/L	1.0	-	-	-	-

John Kern  
Laboratory Director